



**HELIOPHYSICS EXPLORER PROGRAM  
ANNOUNCEMENT OF OPPORTUNITY (AO)**

**2022 EXPLORER MISSION OF OPPORTUNITY (MO)**

**STEP 1  
QUESTIONS & ANSWERS**

**Updated**

~~May 27, 2022~~

~~June 3, 2022~~

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**HELIOPHYSICS EXPLORER PROGRAM  
ANNOUNCEMENT OF OPPORTUNITY  
2022 HELIOPHYSICS EXPLORER MISSION OF OPPORTUNITY**

**STEP-1 QUESTIONS & ANSWERS**

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Please submit your Questions regarding the 2022 Heliophysics Explorer Mission of Opportunity (MO) Announcement of Opportunity (AO) to Dr. Moses, Mr. Florance, and Dr. Rodriguez by email at:

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We will work to develop Answers to your Questions, and post those Answers to this document. Please check back for the latest version, as you may not be notified that your Question has been answered.

<b>Change Log</b>		
<b>Rev.</b>	<b>Date</b>	<b>Description of Changes</b>
01	27 May 2022	Added Q&As 1–2
02	03 Jun 2022	Amended Q&A 1
03	02 Aug 2022	Amended Q&A 2, added Q&As 3–13
04	24 Aug 2022	Amended Q&A 1
05	30 Aug 2022	Amended Q&A 1
06	18 Oct 2022	Added Q&As 14–16
07	25 Oct 2022	Added Q&A 17

**Additions are in bold text and deletions are struck through in amendments.**

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**Q1:** The Community Announcement (released 22 December 2021) indicated that the 2022 Heliophysics Explorers MO solicitation is planned to be released as a Program Element Appendix (PEA) to the Third Stand Alone Mission of Opportunity Notice (SALMON-3) AO with target release dates for the draft and final of March and June 2022, respectively. Has NASA revised the dates for the release of the draft and final MO AOs?

**A1:** The 2022 Heliophysics Explorers MO solicitation is planned for release as a stand-alone AO developed from the Standard PI-led Mission AO Template, as will all future MO solicitations. No additional SALMON-3 PEAs are planned in the future. The target draft and final MO AO release dates are ~~3~~ **10 June** and ~~23~~ ~~31~~ ~~August~~ **9 September** 2022, respectively. The target due date for MO proposals is ~~21 November~~ ~~8 December~~ 2022. [~~Amended 3 Jun 2022~~][~~Amended 24 Aug 2022~~][~~Amended 30 Aug 2022~~]

- Q2:** The Community Announcement (released 22 December 2021) indicated that the NASA-provided launch options under the MO solicitation would be through the NASA Launch Services Program (LSP) Venture-Class Acquisition of Dedicated and Rideshare (VADR) Launch Services. Is additional guidance and information available on VADR options?
- A2:** For Standard-class MOs proposing NASA-provided VADR launch services as a Primary Payload, the lift capability will be **up to** 300kg to a 500 km Sun-Synchronous\* orbit. The MO AO cost cap will be adjusted downwards by a value of \$12M. Access to space options for the 2022 Heliophysics Explorer MO proposers are shown on the table below. **[Amended 27 Jul 2022]**

<b>MO Cost Caps and Access to Space</b>	<b>SmallSat-class MO</b>	<b>Standard-class MO</b>
MO AO cost cap (FY 2022 dollars)	\$35M	\$70M
Adjustment to MO AO cost cap for PI provided access to space	+\$4.2M	\$0
Adjustment to MO AO cost cap for AO-provided rideshare	\$0	-\$4.2M/ESPA port -\$6.5M/ESPA Grande port
Adjustment to MO AO cost cap for AO-provided VADR Launch Services	N/A	-\$12M
Adjustment to MO AO cost cap for AO-provided access to the International Space Station (ISS)	\$0	\$0

\* For other orbits, refer to the *Launch Services Program Information Summary*

The *Launch Services Program Information Summary* will be posted to the Program Library before the release of the final 2022 Heliophysics Explorer MO AO. The fairing volume is projected to be similar to that offered for the 2016 SMEX AO.

- Q3:** The 2022 Heliophysics Explorer MO AO appears to ask for less information than previous Heliophysics Explorer AOs and allocates less pages to some sections. Why is this AO different?
- A3:** To reduce the workload on investigation teams generating Pre-Phase A proposals, the NASA Science Mission Directorate (SMD) has developed the Draft 2022 Heliophysics Explorer MO AO with several requirements deferred to Step 2 (see Section 1.1 of the Draft 2022 Heliophysics Explorer MO AO) and simplified other requirements. For instance, simplified requirements can be found for management (e.g., Draft 2022 Heliophysics Explorer MO AO Sections 5.2.2, 5.3.4, 5.3.6 and Appendix B, Section G), systems engineering (e.g., Draft 2022 Heliophysics Explorer MO AO Section 5.2.2 and Appendix B, Section F.3), schedule (Appendix B, p. B-2 and Section F.6), Letters of Commitment (Section 5.8.1 and Appendix B, Section J.2; see Q&A 4 below) and the heritage appendix (in the form of a table only; Appendix B, p. B-3, and Section J.12).

The page allocations have been reduced to reflect requirement deferrals and simplifications. These page reductions also take into account the recent change in format to 5.5 lines per vertical inch as stated in Requirement B-3 of Appendix B of the Draft 2022 Heliophysics Explorer MO AO.

The requirement deferrals, simplifications, and the page reductions are expected to reduce the workload on proposing teams. Evaluators of proposals submitted to the 2022 Heliophysics Explorer MO AO will be directed to perform the evaluation based on these requirement deferrals, simplifications, and the page reductions.

- Q4:** The Draft 2022 Heliophysics Explorer MO AO Section 5.8.1 and Appendix B Section J.2 requires Institutional Letters of Commitment from organizations offering contributions and from major partners; however, the Draft 2022 Heliophysics SMEX AO Section 5.8.1 and Appendix B Section J.2 requires Institutional Letters of Commitment from organizations only offering contributions. Please clarify whether the requirement is different for these two AOs.
- A4:** The Draft 2022 Heliophysics SMEX AO has the appropriate language. Institutional letters of commitment must be provided only for organizations offering contributions of goods and/or services on a no-exchange-of-funds basis, collaborators excepted. The language in Requirement B-56 will be updated and Requirement 103 will be deferred to Step 2 for the final 2022 Heliophysics Explorer MO AO.
- Q5:** Please define the qualitative and quantitative differences between the Standard-class MO and SmallSat-class MO, aside from their respective Cost Caps.
- A5:** Qualitatively, the SmallSat-class MOs are solicited to provide flight opportunities for high quality, high value, focused Heliophysics science investigations with a reduced scope compared to the Standard-class MO. The quantitative differences, other than AO Cost Cap, are access to space options and adjustments to the AO Cost Caps for access to space (see AO Section 5.6.1.1). The combination of rideshare opportunities and recent advances in SmallSat technology has created an opportunity for high-value heliophysics investigations at a cost point lower than the Standard-class MO. Given that the science scope of even the highest merit SmallSat-class mission is likely to be reduced in comparison to the scope of a Standard-class MO, the two classes of investigations were separated to achieve a fair competition for the lower cost investigations.
- Q6:** The AO-provided rideshare options in the Draft 2022 Heliophysics Explorer MO AO are limited to Sun-synchronous orbit or to Geosynchronous Transfer Orbit (GTO). Will the final MO AO offer AO-provided rideshare options to cislunar space?

- A6:** Yes, MO investigation launches as a secondary or rideshare payload on Secondary Payload Adapters (SPAs) will be offered as AO-provided launch services to cislunar space in the final MO AO.
- Q7:** Who is the Point of Contact (POC) for questions about AO-provided secondary launch services?
- A7:** The Draft 2022 Heliophysics Explorer MO AO Section 5.2.4.2 has Norman Phelps as the LSP POC, however Charles Tatro will be the LSP POC for near future and should be contacted for questions on potential SPA investigations to LEO, GTO, and cislunar space. Charles Tatro's contact information is:  
Charles Tatro  
Mission Manager  
NASA Launch Services Program  
Code VA-C  
Kennedy Space Center, FL 32899  
Phone: 321-867-1121  
Email: charles.a.tatro@nasa.gov
- Q8:** After deploying the primary payload, but prior to deployment of a proposed secondary payload, can the launch vehicle perform an additional payload-specific delta-V maneuver(s)?
- A8:** No, this option is not offered for the 2022 Heliophysics Explorer MO AO.
- Q9:** Mitigation plans for essential contributions require encumbrance of cost reserves. Are these encumbered cost reserves required regardless of the likelihood of the risk?
- A9:** A discussion of mitigation plans for essential contributions must be provided in the proposal (Draft 2022 Heliophysics MO AO Requirement 94). If there is a cost to NASA associated with a given mitigation plan, this cost must have an encumbered cost reserve determined by the risk. That encumbrance is counted against the PIMMC.
- Q10:** The Draft 2022 Heliophysics Explorer MO AO Requirement 46 states that DSN costs "shall be included in the PIMMC". Why is NASA charging proposers for this capability?
- A10:** While NASA is still charging for NSN and DSN, Requirement 46 is not completely correct in the Draft 2022 Heliophysics Explorer MO AO and will be updated in the final

MO AO. NSN and DSN costs will be represented as reductions to the AO Cost Cap for the final AO to better capture the full costs to NASA SMD for each proposed mission. Cost estimation algorithms for the NSN and DSN and persons to contact to obtain costs for other networks and various Government-operated facilities are contained in the *SCaN MOCS* document or at the Interplanetary Network Directorate's Commitment Office website at <https://deepspace.jpl.nasa.gov/about/commitments-office/>.

**Q11:** Previously selected Explorer AOs have required the submission of a project schedule as a Microsoft Project (.mpp) file. Will the 2022 Heliophysics Explorer MO AO require the same?

**A11:** No. A submission of a project schedule as a Microsoft Project file will not be required for this AO. A .mpp file submitted with a MO proposal will not be reviewed during the MO Step-1 evaluation.

**Q12:** Section J.16 of Appendix B of the Draft 2022 Heliophysics Explorer MO AO suggests that the "List of References" is required; however, there is not a numbered requirement associated with it. Is the "List of References" required?

**A12:** Yes. The "List of References" will be required. This update will be reflected with new requirements in the final MO AO.

**Q13:** Based on the 2012 Decadal Survey and the DRIVE Initiative, NASA and NSF were required to collaborate on ground facility support of NASA missions. Please clarify whether NSF facilities currently active and within NSF's recent portfolio will be available for conjunctions during the mission.

**A13:** The Decadal recommendations are not requirements. The referenced recommendation on NASA and NSF collaborations has not been converted into policy. Heliophysics Explorers AOs do not restrict the appropriate use of ground facilities in achieving the science objectives of a proposed investigation. However, there is no policy agreement between NSF and NASA that requires NSF facilities to provide observations to a specific NASA investigation. It is entirely the proposer's responsibility to make any arrangements necessary to obtain observations from NSF facilities.

Typically, a proposer planning to use data from ground based observatory will include either a commitment from the observatory to support the mission (if selected) or a statement that the requisite observations are in alignment with the existing observatory planning. Such a commitment or statement of alignment will be used to evaluate the risk to closure on the science goals if the ground based observations are not achieved. Funding to obtain ground based observations from US-based institutions is, in principle, within the scope of the Heliophysics Explorers Program.

**Q14:** Is there a formal definition for GTO deployment?

**A14:** No, you can assume a typical GTO apogee of 42,000 km, but the inclination is unknown until an available launch is identified. The expectation is that there will be GTO launch opportunities every couple of years. It is important that you provide the requested information for up to two years of storage, which was called out in the AO.

**Q15:** There are apparent discrepancies between deferred requirements in the body of the 2022 Heliophysics Explorer MO AO and Requirement B-36. Requirements 49 and 52 are deferred but the information seems to be still required by Requirement B-36. Do the requirements in the main body of the AO take precedence over the Appendix B requirements?

**A15:** Yes, the main body requirements take precedence over the Appendix B requirements. Thus, any items common to Requirements B-36, 49, and/or 52 are superseded by Requirements 49 and 52 and should be deferred until Step 2. However, items in Requirement B-36 not included in Requirements 49 and 52 should be addressed in the Step-1 proposal.

**Q16:** The table on non-U.S. participation in Requirement 99 of the 2022 Heliophysics Explorer MO AO was provided in Appendix J.4 in previous Heliophysics AOs. Appendix J.4 has been deleted in this AO. Where should proposers put the table for Requirement 99 in their proposal?

**A16:** Proposers should put the table from Requirement 99 in Appendix J.5. The table of non-U.S. participation will not count against the page limit for Appendix J.5.

**Q17:** The 2022 Heliophysics Explorer MO AO states that Requirement 102 is deferred to Step 2. However, the Appendix F compliance checklist still lists Requirement 102 as part of the Step 1 submission. Please confirm whether Requirement 102 is indeed deferred to Step 2?

**A17:** Requirement 102 is still deferred to Step 2 and will not be considered during compliance checks for this solicitation.